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This issue of Loud & Clear will primarily address the educational needs of children who receive cochlear implants and use spoken language. Topics of focus will include:

- Current trends in mainstreaming as a result of technological advances
- Factors to consider when mainstreaming a child with hearing loss
- The function, responsibility and accommodations of the educational team when mainstreaming a child with a cochlear implant
- The skills required of children with hearing loss at various grade levels

CHANGING TRENDS IN THE EDUCATIONAL PLACEMENT FOR CHILDREN WITH COCHLEAR IMPLANTS

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Mainstreaming: Making ordinary education special (Little, 1992)

Current Trends in Mainstreaming

The education of deaf children has been debated for decades by professionals in special education. Their arguments include *how* a child with profound hearing loss should be educated, *where* a deaf child should be educated (eg, a school for the deaf, separate classroom, or regular education¹), and *what* method of communication (eg, oral or manual) should be used. Once parents have made an informed choice regarding communication methodology, their next step is to determine the educational setting that will be the best fit for their child to achieve academically.

The word "mainstream" in the verb form is defined by *Webster's* as: "2. to place (handicapped students) in regular school classes." Presently, many professionals use the term "inclusion" as a replacement for the word "mainstream". Regardless of the term used, it refers to the placement of a child with hearing loss into a regular education classroom with normal hearing children of the same age.

While many argue that hearing loss is not a handicap, students with hearing loss in the United States have regularly been placed in self-contained classrooms, separated from their peers with normal hearing. Prior to the wide use of digital hearing aids and cochlear implants, the special education environment for hearing impaired students was appropriate, due to the exceptional needs that a



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Changing Trends in the Educational Placement continued

severe to profound hearing loss can create. A self-contained classroom provided small class size, appropriate acoustical management and specially trained teachers. However, in today's society, we now have programs in place to identify hearing loss at birth, initiate early intervention services and provide better hearing technology to children at a very young age. More children with hearing loss are receiving hearing aids soon after their hearing loss is identified and are receiving cochlear implants as early as 12 months of age. As a result, the use of spoken language has become a reality for many students with hearing loss and, accordingly, their educational needs have

“*Simply placing the child in the mainstream is not enough. Adequate support systems must be in place to ensure that each child is developing cognitively, academically, communicatively, socially, and emotionally.*”

changed. There has been a notable increase in the number of students with cochlear implants in the mainstream.² Many children who are implanted early (prior to age 3) are entering the mainstream classroom within 3 or 4 years of implant use.^{3,4} However, mainstreaming as it is currently practiced suggests that a child has sufficient language, literacy, and academic achievement to access the regular grade-level curriculum, with only minimal adaptations to the content.¹ While research suggests that *a certain portion of* children who receive cochlear implants and early intervention services at an early age can achieve speech, language and reading milestones commensurate with hearing peers,^{4,5,6} the child with a hearing loss typically continues to require support services in the mainstream setting. It is fortunate that many students with hearing loss can now receive appropriate technological and educational support within their neighborhood schools.

Factors to Consider when Mainstreaming

When parents make the decision to place a child with a hearing loss in a classroom of peers with normal hearing, they often do so based on the recommendation of the school

therapist or professional working with the child. Many children who receive a cochlear implant before the age of 3 enter a mainstream preschool program to prepare them for the mainstream elementary school setting. It is important to keep in mind that the needs of the child at each stage are different. Exposure to incidental learning and new vocabulary will be the goal in both situations, but the elementary school setting will require much more from the child and the educational team in terms of academic and social skills. It is essential for the therapist, teacher of the deaf, mainstream teacher and parents to be fully

aware of the preparation required for each type of setting, as the needs of the child and the demands placed upon him or her change. When making recommendations regarding mainstreaming, it is also important to note:

“The goal is not to place cochlear implant children in regular classrooms at all costs, but to choose that environment because the child has the skills to succeed there while expanding his or her cognitive and linguistic repertoire... Unless the language levels of deaf children are within 1 or 2 years of the levels of those in the regular class in which they are placed, they are virtually cut off from the entire verbal input process that is basic to educational experiences.”⁷”



When teachers and therapists make recommendations to parents regarding mainstreaming, it is important that they understand the need for the child with hearing loss to have spoken language skills within 1 or 2 years of his or her hearing peers. For example, if a child receives a cochlear implant at the age of 12 months, by the time the child enters a mainstream preschool setting at the age of 3 years, his or her spoken language skills should be equivalent to those of a hearing child who is between 12 and 36 months of age. It is important to keep in mind that children with normal hearing develop auditory and spoken language skills along a continuum—as do children with hearing loss.

Achieving spoken language to a level commensurate with hearing peers depends on the length of time with profound deafness, exact age at implantation, consistent use of the cochlear implant (during all waking hours), type of early intervention, and the family dynamics, as well as upon the child. For instance, a child who receives a cochlear implant at the age of 4 or 5 years of age may begin school in a self-contained classroom but may transition to the mainstream classroom over time. To make such a transition, the child must make greater than one year of progress each year in order to obtain spoken language skills within 1 or 2 years of his or her peers with normal hearing. This transition to the mainstream is entirely possible, with appropriate family and educational team support.

Speech and language evaluations at regular intervals are necessary to determine if a child is making appropriate progress. If a child's language age is within 1-2 years of his or her peers with normal hearing, the goal of mainstreaming might be to boost the child's vocabulary through incidental learning. If a child's language age discrepancy with his or her chronological age is greater than 2 years, the child may become frustrated in the mainstream environment due to his or her lagging skills.

While there is no perfect formula for all children with hearing loss to determine success in the mainstream setting, the chart below contains some considerations.

To start Kindergarten in the mainstream, a minimum of a 4-year-old language level is desired. A child with this degree of language mastery is communicating effectively in sentences. Syntax and grammar need **not** be perfect.

To be mainstreamed, a child needs to be able to make him or herself understood most of the time.
Intelligibility ≠ Perfection.

A child who received a cochlear implant between 4–6 years of age may start school in a hearing-impaired program but be able to transition to the mainstream over time.

A child with a cochlear implant needs to have a **vocabulary plan**. Vocabulary need *not* be exactly at an age-appropriate level, but for a child to be successful in the mainstream, performance over time should reflect a closing of the gap between performance age and chronologic age.

Seriously consider placing a child in the mainstream classroom when:

- auditory development has reached at least a 3–4 year level
- test performance trends toward closing of the gap between chronological age and performance age
- child is outperforming peers in self-contained classroom; may not be adequately challenged



The option for a child with hearing loss to attend a neighborhood school with his or her siblings and peers has created both opportunities and challenges for students and the mainstream educational team. An increase in responsibility exists for the student with the hearing loss, his or her family, and the mainstream education team to ensure that the cochlear implant and/or hearing aids are in proper working order and that the child is able to maintain academic skills at the same pace as classroom peers.

Because more children with cochlear implants are entering the mainstream setting either at the preschool or early elementary school level, it is necessary for teachers, audiologists, and therapists to be aware of:

- Appropriate expectations for children with cochlear implants to achieve spoken language skills that allow them to compete with hearing peers
- Changing needs of the child's auditory, speech and academic skills at the preschool level
- Language age compared to chronological age (as determined by routine subjective and objective speech, language, and auditory skills testing at regular intervals)
- How to assess social skills (observation, age-appropriate checklists)
- Speech perception and auditory skills abilities both in quiet and in noise

The Function of the Educational Team

After the child's parents and the educational team have decided that the child with hearing loss is ready to enter a mainstream classroom environment, (ie, his or her language level is within 2 years of hearing peers) there are many other decisions that will follow. It is important that not only the teacher of the hearing impaired and speech-language pathologist understand the needs of the child with the cochlear implant in the classroom setting, but that the mainstream education teacher(s) also be made aware of how to

help the child succeed in a regular education classroom. The educational team for a child with a cochlear implant in the mainstream setting is crucial to his/her success, and the composition of the team may be different depending upon the needs and skills of the child. The roles of the individual team members will likely be fluid rather than distinct, and some overlap will inevitably occur. Nevertheless, it is important to determine which team member(s) will take responsibility for specific goals and needs so that there is adequate carry-over and minimal duplication of services.^{8,9}

The members of the educational team and their primary duties may include:

School-based Speech-language Pathologist and/or Auditory-Verbal Therapist®

- Assessing and monitoring progress
- Collaborating between mainstream setting and teacher of the deaf
- Providing direct speech and language services, as needed
- Troubleshooting the cochlear implant and Assistive Listening Devices (ALDs), as needed
- Possibly serving as case manager

Teacher of the Hearing Impaired

- May be the itinerate providing one-on-one services or monitoring child's progress in the classroom, or consultative within the classroom working closely with the regular education teacher
- Collaborating with speech-language pathologist to determine service delivery
- May also include pre-teaching concepts as determined by mainstream teacher

Educational Audiologist

- Monitoring and maintaining FM system and the cochlear implant
- Troubleshooting hearing technology when problems arise

- Assisting mainstream teachers in determining acoustic setting
- Providing in-service to other educators about importance of acoustic modifications and use of an FM system in conjunction with cochlear implants
- May also include providing direct aural habilitation services in some situations

Language Facilitator or other Paraprofessional

- Pre-teaching concepts in the classroom
- Assisting the child with directions or complex information in noisy situations (eg, assemblies or special programs)

Classroom Teachers

- Becoming aware of acoustic needs of child the with the cochlear implant
- Expecting that the student who is deaf/hard-of-hearing follows the regular curriculum to the greatest extent possible
- Making appropriate educational modifications, if necessary
- Communicating class themes to the child's educational team and parents at least one week ahead
- Notifying parents/speech pathologist when re-teaching is necessary

Other Specialists, Such as Occupational and/or Physical Therapists

- May be consulted as necessary depending on the child's needs. For example, to assist with sensory integration disorder or noted delays in the child's fine and gross motor skills

Other School Personnel, Such as the Principal, Music and Art Teachers, and Physical Education Teachers

- Expecting that the student who is deaf/hard-of-hearing follow the regular curriculum to the greatest extent possible

- Becoming educated via in-services or outside workshops related to hearing loss and cochlear implants
- Working together to support the unique needs of the child

School Psychologists or Counselors

- Becoming aware of potential social concerns with children entering the mainstream
- Having high expectations rather than outdated ones about deafness when assessing cognitive skills of the child who is deaf/hard-of-hearing,

The Cochlear Implant Team

- May have varying involvement depending on the team

Parents

- Communicating regularly with the special education and mainstream education teachers to discuss class themes and working with the child at home to establish follow-through of daily work
- Assisting educators with pre-teaching and re-teaching
- Assisting the child with the transition by instilling confidence and encouraging him/her to speak for him/herself in the classroom when questions arise or when comprehension doesn't occur

The Child

- Advocating for him/herself in the mainstream setting
- Communicating with professionals on the team when he/she has questions
- Communicating with parents when he/she is having difficulty in the classroom with assignments, content and/or a particular subject

Each member of the team plays a distinct, yet integral role in the educational planning and execution of the child's Individualized Educational Plan (IEP). Questions may often arise regarding the responsibility of each team member; therefore it is important to make decisions regarding specific roles before the child enters the school program. For example,

it may be necessary to define a child's "case manager," "teacher of record" or the "go-to" person within the school who is able to coordinate services, perform the daily listening check on the child's equipment, trouble-shoot the cochlear implant and/or hearing aids, and answer questions related to habilitation. This professional may be the speech-language pathologist/Auditory-Verbal Therapist® or the teacher of the hearing impaired (Educational audiologists often serve entire school districts and may or may not be readily available).¹

It is necessary that all professionals on the child's educational team be aware of the technology used by the child, basic troubleshooting, and the child's educational goals and skill level. The presence of a case manager can be helpful when questions arise. Some school districts are able to provide students with a speech-language pathologist who has been trained in a specific area, such as hearing loss. With the Auditory-Verbal Therapy approach, the parent is the child's primary case manager and teacher; however, once the child transitions to school it is important that the other team members at school are able to follow-through with the child's goals on a daily basis. It should be noted that the responsibility of the parents is not lessened by the child entering school. In fact, the role of the parent during after-school hours may become more demanding as a result of working with the child to maintain academic skills.

Skills Required at Various Grade Levels

The educational accommodations and needs for a child with hearing loss in preschool will obviously be different than those of an older child transitioning to upper elementary school. When considering the daily schedule in a preschool setting, it is necessary that the child be able to do the following:

- Communicate non-verbally via eye contact, pretend play, share, turn-taking, etc.
- Maintain attention in a "group" setting
- Follow the teacher's directions
- Initiate/respond to greetings
- Request assistance
- Understand language of classroom routines
- Answer commonly asked questions: "What's your name? How old are you?"
- Use common phrases: "I want that, please." "Don't touch me." "It's mine."
- Learn some new vocabulary from the regular class instruction through incidental learning (as opposed to *recognizing* known vocabulary that has been pre-taught)



As the child transitions to Kindergarten, different demands are required. The educational team will assist the child and family in preparing for the new situation. Skills required include the ability to:

- Understand language of instruction at a kindergarten level
- Make a few sound-symbol associations
- Attend *and participate* in group lessons

- Play with rhyming words
- Display phonemic awareness
- Learn new vocabulary (more than a few words each week) from the regular class instruction (rate of vocabulary acquisition must not depend primarily on pre-teaching).

Likewise, the need for even higher-level skills exists at the first grade level and beyond, as the mainstream classroom environment becomes more challenging for all children. Examples of skills for the first-grader include the ability to:²

- Learn new vocabulary at a rapid rate from the instruction given in the regular classroom (Pre-teaching may be necessary but should not be the primary source of new vocabulary learning)
- Use words to solve problems
- Recognize “sight vocabulary” through audition
- Tell the main idea of a story
- Comprehend math word problems presented orally
- Decode simple words, sentences
- Participate in cooperative games

As a child gains more skills and continues in the mainstream classroom for upper elementary school, middle and high school, the demands placed on the child will increase. The goal for the child continues to be to read and learn at a rate commensurate with hearing peers in order to maintain the appropriate academic level. Throughout a child’s school career, social skills also play a crucial role. Examples of skills for the fourth-through-sixth grader include:¹¹

Social Skills:

- Conversational skills with peers
- Clarification strategies to verify information
- Clarification strategies to communicate information

Auditory Comprehension Skills:

- Auditory awareness of inner voice
- Auditory tracking (formal work to conversation)

- Auditory processing and feedback of spelling words
- Auditory memory-sequencing of events/stories
- Auditory memory of rhymes and poems
- Multiple meanings of words, synonyms, homonyms
- Knowledge of geography (states and capitals)

Expressive Communication Skills:

- Gather information verbally; interviewing
- Summarize information verbally
- Verbalize visualizations
- Express personal opinion
- Clarify missed information
- Improve speech intelligibility

Conclusion

In summary, the educational team plays a crucial role in determining if the child with a cochlear implant is able to follow the regular curriculum as the pace increases and the demands change at each educational level. It is important to keep in mind that for some children who receive a cochlear implant at an early age, it is possible to achieve academic levels commensurate with hearing peers. Nevertheless, the educational team should keep in mind that many professionals do not support surrendering a child’s emotional, social, and academic well-being to comply with the movement of inclusion for all children. A family and the educational team should feel no sense of failure in changing educational placement if a child is not thriving. In fact, we do a disservice to the child by not doing so. However, by monitoring a child’s progress, maintaining high expectations and regular communication with the child’s educational team, great success *can* be obtained.

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